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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,796

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Karim-Mathieu Bouchalat

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Muncy, Geissler, Olds & Lowe, PLLC  
4000 Legato Road  
Suite 310  
FAIRFAX, VA 22033

EXAMINER

RUBY, TRAVIS C

ART UNIT

PAPER NUMBER

3785

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,796	<b>Applicant(s)</b> BOUCHALAT ET AL.	
	<b>Examiner</b> TRAVIS RUBY	<b>Art Unit</b> 3785	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-29 and 32-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 and 32-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “actuating device comprises a closure flap having a comb structure that extends between the heat exchange plates when the actuating device is in the first position” as set forth in Claim 1 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 lines 10-12 recite “actuating device comprises a closure flap having a comb structure that extends between the heat exchange plates when the actuating device is in the first position”. The specification recites on page 13 lines 31-34 recites "or comb structure which engages at least partially in the intermediate spaces of the heat exchanger surface of the heating apparatus". There is neither recitation of a first position nor any other positions for the comb structure actuating device. In addition, the claim recitation of " a comb structure that extends between the heat exchange plates" is different in scope than that of the specification recitation of “engages at least partially in the intermediate spaces of the heat exchanger surface”. Thus, the amended claim limitations of Claim 1 are new matter.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**5. Claims 1-6, 8-24, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata (US20020170707A1) in view of Goto (JP-2003343924A, machine translation).**

**Re Claim 1.** Shibata teaches an installation arrangement for an air-conditioning system with a heating apparatus (ref 13) having at least one housing (ref 10) through which air is fed in an at least partially predefined flow conduit (Figure 1, Paragraph 21), and

which has at least one heating apparatus (ref 13) and at least one actuating device (ref 33), with the heating apparatus being arranged in a first flow path and the actuating device being arranged at least partially in a second flow path (Figure 1, Paragraphs 51-52),

wherein in at least a first position the actuating device causes substantially all air in the flow path to flow through the first flow path and the heating apparatus and in at least a second position, the actuating device permits air to flow through the second flow path without restricting airflow through said first flow path (Paragraphs 51-52; Figure 1)

Shibata fails to specifically teach that wherein the heating apparatus includes a plurality of heat exchange plates and the actuating device comprises a closure flap having a comb structure that extends between the heat exchange plates when the actuating device is in the first position. Goto teaches a heating apparatus includes a plurality of heat exchange plates (ref 30; Figure 1, 5-6) and the actuating device comprises a closure flap(ref 51, 60) having a comb structure that extends between the heat exchange plates when the actuating device is in the first position (Figure 4,6-8,12; Paragraph 25,28,30,31) . In view of Goto's teaching, it would have been obvious to one of ordinary skill in the art at the time of invention to use a plate heat

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exchanger in place of Shibata's heat exchanger since they are art recognized equivalents for the purpose of heat exchanger. In addition, it would have been obvious to one of ordinary skill in the art to use a comb like structure at the end of the actuating device since this would lead to the predictable and expected result of more efficient sealing off of the passage since all gaps would be closed off.

**Re Claim 2.** Shibata teaches the housing has at least one inlet (Paragraph 23) and at least one outlet (ref 35, 36) for the air (Paragraph 53-54).

**Re Claim 3.** Shibata teaches the heating apparatus (ref 13) is selected from a group of heating apparatuses which contains heat exchangers, CO2 heat pumps, heaters which use exhaust gas heat, fuel heater, condensers, stationary-mode heaters, electric heaters, and PTC heaters (Paragraph 45).

**Re Claim 4.** Shibata teaches the heating apparatus has a core which conducts heat and whose heat exchanger surface is formed by baffle plates which are arranged at a predefined angle to the main direction of extent of the core, in a heat-conducting fashion on a surface of said core (Paragraph 45-46; Figure 1).

**Re Claim 5.** Shibata teaches that at least part of the surface of the heat-conducting core has a flow of air around said heat conducting core (Paragraph 45-46; Figure 1).

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**Re Claim 6.** Shibata teaches the cross section of the heat-conducting core is such that the flow of the air at least along part of the surface of the heat-conducting core is essentially laminar (Paragraph 45-47).

**Re Claim 8.** Shibata teaches a cross section through which some of the air which flows through the heating apparatus (ref 13) flows is formed between the heat-conducting core and an element (ref 32) which adjoins the heating apparatus and at least partially bounds the first flow path (Paragraph 51-52; Figure 1).

**Re Claim 9.** Shibata teaches a third flow path (ref 27) through which a heating medium (i.e. water) flows is arranged within the heat-conducting core (Paragraph 48).

**Re Claim 10.** Shibata teaches the heating medium (water) is a fluid (Paragraph 45-48).

**Re Claim 11.** Shibata teaches the heating medium which flows through the heat-conducting core brings about a temperature gradient across the cross section of the core (Paragraph 45-48, Heat exchangers by nature have a temperature gradient).

**Re Claim 12.** Shibata teaches a temperature gradient of the heat-conducting core is at least partially parallel with a temperature gradient of the air which flows through the heating apparatus (Paragraph 45-48, 51-52; Figure 1; A heat exchanger in view of thermodynamics would have a temperature gradient when two mediums are exchanging heat).

**Re Claim 13.** Shibata teaches the heat exchanger includes a plurality of buffer plates having a basic shape which is selected from a group consisting of squares, rectangles, circles, ellipses, and polygons (Figures 1-2; Paragraph 45-48).

**Re Claim 14.** Shibata teaches the heating apparatus is arranged in a bypass duct (Paragraph 51-52; Figure 1; The heating apparatus is in an alternate flow path of the normal air flow).

**Re Claim 15.** Shibata teaches the heating apparatus is arranged at a predefined distance from the external wall of the housing (Paragraph 45-48, 51-52; Figure 1 illustrates the heating apparatus is a distance from the external wall).

**Re Claim 16.** Shibata teaches the heat exchanger surface of the heating apparatus assumes a predefined angle to the longitudinal axis of the motor vehicle in which the heating apparatus is mounted (Paragraph 51-52, Figure 1 illustrates the heat exchanger is horizontal).

**Re Claim 17.** Shibata teaches an electric fan (ref 1 and 3) which promotes the movement of air through the device within at least one flow conduit is provided in the housing (Paragraph 22; Figure 1).



**Re Claim 18.** Shibata teaches the air is fed directly and/or indirectly into the passenger compartment of a motor vehicle through the outlet (Paragraph 53-54; Figure 1).

**Re Claim 19.** Shibata teaches the actuating device (ref 33) can be moved into at least two positions (Paragraph 51-52; Figure 1).

**Re Claim 20.** Shibata teaches the actuating device (ref 33) is continuously adjustable, with the proportion of air which is fed through the heating apparatus and/or past the heating apparatus being changed and closed-loop and/or open-loop controlled depending on the position (Paragraph 51-52, 57-59).

**Re Claim 21.** Shibata teaches a second actuating device (ref 40) which essentially prevents a flow of air counter to the main direction of flow of the first flow path is arranged downstream of the heating apparatus in the first flow path (Paragraph 53-54).

**Re Claim 22.** Shibata teaches the second actuating device is embodied in such a way that it is at least partially opened by the air flowing through the heating apparatus in the main direction of flow (Paragraph 53-54).

**Re Claim 23.** Shibata teaches the second actuating device has a actuating element which at least partially counteracts an opening movement of the actuating device (Paragraph 53-54).

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**Re Claim 24.** Shibata teaches the actuating devices are selected from a group of actuating devices which contains flaps, swinging flaps, segmented flaps, wing flaps, shutters, and iris shutters (Paragraph 51-54).

**Re Claim 29.** Shibata teaches the individual elements and/or assemblies of the device are arranged basically one behind the other in the flow conduit, in which case at least one element and/or one assembly can be removed from the flow conduit by means of a bypass (Figure 1; Paragraph 51-53).

**6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata (US2002/0170707A1) in view of Goto (JP-2003343924A, machine translation) in view of Hessari (US4287945).**

**Re Claim 7.** Shibata teaches a heat exchanger but fails to specifically teach the cross sectional shape of the heat-conducting core is asymmetrical. Hessari teaches an asymmetrical heat exchanger (Figure 2, Column 2 lines 6-22, Column 3 lines 12-19). In view of Hessari's teaching it would have been obvious to one of ordinary skill in the art at the time of invention to include an asymmetrical heat exchanger to Shibata's air conditioner since it provides for a more efficient heat exchange and thus improves performance.

**7. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata (US2002/0170707A1) in view of Goto (JP-2003343924A, machine translation) in view of Smith et al (US2004/0182562A1).**

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**Re Claim 25.** Shibata fails to teach a device for filtering air, in the region of the inlet is provided.

Smith et al teaches a filter (ref 66) for a heat exchanger used for a vehicle heating and air conditioning apparatus (Paragraph 27, Figure 1).

In view of Smith et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to include a filter to Shibata's air conditioner because it keeps the system operating at maximum efficiency by preventing the heat exchanger coils from getting clogged. In addition, a filter can remove air borne contaminants from the air supply.

**Re Claim 26.** Shibata fails to specifically teach a closed-loop or open-loop control device which performs closed-loop or open-loop control on the quantity of air flowing through is provided on the at least one inlet and/or outlet for the air.

Smith et al teaches a closed-loop or open-loop control device which performs closed-loop or open-loop control on, in particular, the quantity of air flowing through is provided on the at least one inlet and/or outlet for the air (Paragraph 37, Figure 10).

In view of Smith et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to include a controller with Shibata's air conditioning apparatus since it allows for optimal and efficient control over the positioning of the vent doors and the air temperature.

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**Re Claim 27.** Shibata teaches an air conditioner in a vehicle but fails to specifically teach that the air is fed at least partially along a dividing wall adjoining an internal combustion engine, and in that at least one heating apparatus is arranged in particular in this region.

Smith et al teaches that the air is fed at least partially along a dividing wall adjoining an internal combustion engine, and in that at least one heating apparatus is arranged in particular in this region (Paragraph 9 and 23. Figures 1 and 2).

In view of Smith et al's teachings it would have been obvious to one of ordinary skill in the art at the time of invention to include an air supply that goes through a dividing wall to Shibata's vehicle air conditioning apparatus since it allows outside air to enter inside the vehicle cabin which is also common knowledge of how a vehicle air conditioner works. It would have been obvious to one of ordinary skill in the art at the time the invention was made to locate the heating apparatus near the engine dividing wall, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

**8. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata (US2002/0170707A1) in view of Goto (JP-2003343924A, machine translation) in view of Hashimoto (US2005/0126773A1).**

**Re Claim 28.** Shibata fails to specifically teach the device has at least one sensor which is selected from a group of sensors which determine the temperature, pressure, speed, or the position of a component.

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Hashimoto teaches the device has at least one sensor (ref 31) which is selected from a group of sensors which determine the temperature, pressure, speed, or the position of a component (Paragraph 27).

In view of Hashimoto's teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to include a temperature sensor to Shibata's air conditioning system because it allows the air conditioner to operate at its optimum efficiency by measuring the air temperature and responding accordingly.

**9. Claims 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata (US2002/0170707A1) in view of Brochin et al (US6360817B1).**

**Re Claim 32.** Shibata teaches an installation arrangement for an air-conditioning system comprising:

at least one housing (ref 10) through which air is fed (Figure 1, Paragraph 21);

a first flow path (ref 32) in the housing; a second flow path in the housing, the second flow path having a first opening at a first location along the first flow path and a second opening at a second location along the first flow path spaced from the first location, a central portion of the second flow path being located outside the first flow path (Figure 1, Paragraphs 21, 51-52);

a heating apparatus (ref 13) in the second flow path; and

an actuating device (ref 33) in the first flow path between the first location and the second location, the actuating device being shiftable between a first position permitting air flow through the first air flow path from the first location to the second location and a second position

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substantially blocking air flow through the first flow path from the first location to the second location such that air in the first flow path must traverse the second flow path to travel from the first location to the second location (Figure 1, Paragraphs 51-52).

Shibata fails to teach that the heating apparatus includes first and second sets of heat exchange plates in the second flow path. Brochin et al teaches a heating apparatus (ref 110) includes first (ref 118) and second (ref 120) sets of heat exchange plates (ref 114) in the second flow path (Figure 5; Column 4 lines 10-28). In view of Brochin's teaching it would have been obvious to one of ordinary skill in the art at the time of invention to replace the heat exchanger of Shibata with the heat exchanger of Brochin since they are art recognized equivalents for the purpose of heat exchange.

**Re Claim 33.** Shibata teaches a plate heat exchanger in the second flow path but fails to teach multiple heat exchange plates. Brochin teaches wherein the first set of heat exchange plates (ref 118) is located in the second flow path at a location upstream of the second set of heat exchange plates (ref 120) such that air flowing through the second flow path from the first location to the second location passes through both the first set of heat exchange plates and the second set of heat exchange plates (Figure 4-5). In view of Brochin's teaching it would have been obvious to one of ordinary skill in the art at the time of invention to replace the heat exchanger of Shibata with the heat exchanger of Brochin since they are art recognized equivalents for the purpose of heat exchange. In addition, it would have been obvious to have multiple sets of plates since this would lead to the expected and predictable result of increased heat exchange efficiency.

**Re Claim 34.** Shibata teaches a plate heat exchanger in the second flow path but fails to teach multiple heat exchange plates. Brochin teaches wherein air flowing through the second flow path passes through the first set of heat exchange plates in a first direction and passes through the second set of heat exchange plates in a second direction, different than the first direction (Figure 4-6). In view of Brochin's teaching it would have been obvious to one of ordinary skill in the art at the time of invention to replace the heat exchanger of Shibata with the heat exchanger of Brochin since they are art recognized equivalents for the purpose of heat exchange. In addition, it would have been obvious to have multiple sets of plates since this would lead to the expected and predictable result of increased heat exchange efficiency. In addition it would have been obvious to one of ordinary skill in the art at the time the invention was made to locate the two sets of heat exchange plates such that the air moves in different directions, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

**Re Claim 35.** Shibata teaches a plate heat exchanger in the second flow path but fails to teach multiple heat exchange plates. Brochin teaches wherein air flowing through the second flow path passes through the first set of heat exchange plates in a first direction and passes through the second set of heat exchange plates in a second direction, opposite to the first direction (Figure 4-6). In view of Brochin's teaching it would have been obvious to one of ordinary skill in the art at the time of invention to replace the heat exchanger of Shibata with the heat exchanger of Brochin since they are art recognized equivalents for the purpose of heat

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exchange. In addition, it would have been obvious to have multiple sets of plates since this would lead to the expected and predictable result of increased heat exchange efficiency.

In addition it would have been obvious to one of ordinary skill in the art at the time the invention was made to locate the two sets of heat exchange plates such that the air moves in different directions, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

**Re Claim 36.** Shibata teaches a heat conducting core (ref 13) but fails to specifically teach the heating apparatus includes a heat conducting core, the first and second sets of heat exchange plates extend in opposite directions from the heat conducting core, and wherein the heat conducting core partially defines the second flow path. Brochin teaches the heating apparatus includes a heat conducting core, the first and second sets of heat exchange plates extend in opposite directions from the heat conducting core, and wherein the heat conducting core partially defines the second flow path (Figures 1-6; Column 2 lines 6-22 and 49-65; Column 3 lines 4-21).

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 1-29 & 32-36 have been considered but are moot in view of the new ground(s) of rejection.



***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRAVIS RUBY whose telephone number is (571)270-5760. The examiner can normally be reached on Monday-Friday 9:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Swann can be reached on 571-272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Travis Ruby/  
Examiner, Art Unit 3785

/J J Swann/  
Supervisory Patent Examiner, Art Unit  
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